Patent Claims

1. A method for monitoring and, possibly, for controlling the transmission capacity of a data transmission path which exists between two data devices and is used for transmitting signals, in particular data signals, and on which a primary channel with a relatively low transmission capacity is used, whose magnitude possibly depends on influences which are outside the control of the two data devices, and which can be replaced or added to by means of one or more secondary channels having a relatively high transmission capacity,
with test signals being transmitted at specific times or periodically via the primary channel,
with the delay time with which these test signals are transmitted being determined,
and with a signal which indicates that the primary channel is overloaded being emitted if a specific threshold value is exceeded, in response to which at least one secondary channel can be activated for signal transmission,
characterized

- in that said delay time is determined in that, in response to the emission of the test signals, a response signal is in each case sent back from at least one of the two data devices (PC, COC; POP) via the primary channel of said data transmission path (D, TL1, TL2) to the other data device (POP) from this said other data device (POP; PC, COC) in response to the reception of the relevant test signals, to said first data device (PC, COC; POP) via the primary channel of the data transmission path (D, TL1, TL2), which response signal either comprises the respective test signal itself, or is a separate signal which is initiated by it,

- in that the time interval between the transmission of a test signal by said first data device (PC, COC; POP) and the arrival of a response signal which is sent back to it from said other data device (POP; PC, COC) is compared with a predetermined threshold value time, which corresponds to a specific current transmission capacity of the primary channel of the data transmission path (D, TL1, TL2), forming a comparison result, in response to which a transmission capacity signal is formed, which corresponds to this result and which can be used to activate of at least one secondary channel for signal transmission,
- in that the monitoring of the transmission capacity is carried out deliberately, before transmission of the relevant data, when an amount of data is present which exceeds a defined amount threshold value and is to be transmitted by said first data device (PC, COC; POP) to said other data device (POP; PC, COC),
- in that the time of the start of deliberate monitoring of the transmission capacity of said data transmission path (D, TL1, TL2) is used as the point of origin for regular monitoring of the transmission capacity of the relevant data transmission path (D, TL1, TL2) at time intervals of t,
- and in that no further deliberate monitoring of the transmission capacity of said data transmission path (D, TL1, TL2) is carried out in a situation in which the time period düakt which has passed since the last monitoring of the transmission capacity is shorter than a defined time period dümin.

2. The method as claimed in claim 1, characterized in that the transmission of the respective test signal activates a timer (TIM) which emits an output signal once a defined time interval has elapsed,

and in that, if the relevant output signal occurs before the arrival of said response signal, a transmission capacity signal is emitted which indicates an overload state on said data transmission path (D, TL1, Tl2).

3. The method as claimed in claim 1 or 2, characterized in that the signals which are associated with a communication between the two data devices (PC, COC; POP) which is necessary for connection of a secondary channel are sent at the earliest possible time, in particular are transmitted with priority over existing data.

4. The method as claimed in one of claims 1 to 3, characterized in that, in an integrated service digital network (ISDN) in which a switched virtual channel (Switched Virtual Circuit) which in places runs within a D channel is used as the primary channel and at least one B channel is used as the secondary channel, message signals for a bandwidth allocation protocol are used to allocate the bandwidth and transmission capacity to be used before setting up a B channel, and is transmitted with priority over other data.

5. The method as claimed in claim 4, characterized in that the message signals EchoRequest and EchoReply of an Internet link control protocol are used as the test signal and response signal, respectively.

6. A circuit arrangement having means for carrying out the method as claimed in one of claims 1 to 5, characterized in that at least one of two data devices (PC, COC; POP) which are connected to one another via a data transmission path (D, TL1, TL2) has an associated monitoring device (SIG, PRC), which allows a time comparison to be carried out between a measurement time

interval from the emission of a test signal from the relevant data device (SUB) to the other data device (POP; PC, COC) until the arrival of a response signal from this other data device (POP; PC, COC) with a predetermined threshold value time (T1),
and in that the relevant monitoring device (SIG, PRC) can emit a transmission capacity signal which corresponds to the respective time comparison result, in particular a report signal which indicates an overload state on the data transmission path (D, TL1, TL2), if said measurement time interval exceeds the relevant threshold value time.

7. The circuit arrangement as claimed in claim 6, characterized in that a timer (TIM) is connected to said monitoring device (SIG, PRC), which can be activated by said test signal, and emits an output signal to the relevant monitoring device (SIG, PRC) once its operating time, which corresponds to an overload state of said data transmission path (D, TL1, TL2), has elapsed, which monitoring device (SIG, PRC) uses this output signal, if the response signal from said other data device (POP; PC, COC) has not yet arrived, to emit a report signal which indicates the overload state of the data transmission path (D, TL1, TL2).